

PATENT  
Atty Dkt. No. 033136-115

WHAT IS CLAIMED IS:

1. An apparatus for eliminating gas bubbles from a syringe, the apparatus comprising:
  - 5 a syringe having a syringe outlet and a syringe operator;
  - an actuator for moving the syringe operator;
  - a tubing connected to the syringe outlet; and
  - a sensor positioned adjacent the tubing for sensing when gas bubbles have been eliminated from the tubing.
- 10 2. The apparatus of Claim 1, wherein the sensor includes a transmitter positioned on one side of the tubing and a receiver positioned on an opposite side of the tubing.
- 15 3. The apparatus of Claim 1, wherein a sealing mechanism for sealing the tubing is positioned between the sensor and the syringe outlet for sealing the tubing after the gas bubbles have been eliminated.
4. The apparatus of Claim 3, wherein the sealing mechanism is a heat sealing device.
- 20 5. The apparatus of Claim 1, wherein the sensor and the actuator are controlled by a control system to advance the syringe operator until the sensor indicates that the gas bubbles have been removed from the tubing.
6. The apparatus of Claim 1, further comprising a mechanical knocker

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arranged to impact the syringe to increase the speed at which gas bubbles are dissipated from a fluid in the syringe.

7. The apparatus of Claim 6, wherein the mechanical knocker includes an impact member positioned on one side of the syringe and a spring positioned on 5 an opposite side of the syringe.

8. The apparatus of Claim 1, wherein the sensor is an ultrasonic sensor.

9. An apparatus for conditioning a organic fluid for subsequent use in a medical procedure, the apparatus comprising:

10 a cabinet having a secure environment for conditioning of a organic fluid;

an input system for transporting a organic fluid charge from a source to the cabinet;

15 a container removably contained in the secure environment and coupled to the input system to receive the charge;

stressors coupled to the cabinet and positioned for operation to create a conditioned charge in the container;

an output system coupled to the container and including a receiver for the conditioned charge; and

20 an apparatus sensing when gas bubbles are eliminated from the receiver including a sensor arranged for sensing when gas bubbles have been eliminated from the receiver.

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10. The apparatus of Claim 9, wherein the receiver comprises:  
a syringe having a syringe outlet and a syringe operator;  
an actuator for moving the syringe operator; and  
a tubing connected to the syringe outlet.

5 11. The apparatus of Claim 10, wherein the sensor is positioned  
adjacent the tubing for sensing when gas bubbles have been eliminated from the  
tubing.

10 12. The apparatus of Claim 10, wherein the sensor includes a  
transmitter positioned on one side of the tubing and a receiver positioned on an  
opposite side of the tubing.

13. The apparatus of Claim 12, wherein the sensor is an ultrasonic  
sensor.

14. The apparatus of Claim 11, wherein a sealing mechanism for  
sealing the tubing is positioned between the sensor and the syringe outlet for  
15 sealing the tubing after the gas bubbles have been eliminated.

15. The apparatus of Claim 14, wherein the sealing mechanism is a heat  
sealing device.

16. The apparatus of Claim 11, wherein the ultrasonic sensor and the

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actuator are controlled by a control system to advance the syringe operator until the ultrasonic sensor indicates that the gas bubbles have been removed from the tubing.

17. The apparatus of Claim 10, further comprising a mechanical  
5 knocker arranged to impact the syringe to increase the speed at which gas bubbles are dissipated from a fluid in the syringe.

18. The apparatus of Claim 17 wherein the mechanical knocker includes an impact member positioned on one side of the syringe and a spring positioned on an opposite side of the syringe.